

CLAIMS

1. A peptide comprising an amino acid sequence of GLP-1 (7-35) having deletion, substitution and/or addition of 5 one or a few amino acids and having a GLP-1 activity with Waa-(Xaa)_n-Yaa (in which Waa is Arg or Lys, Xaa is Arg or Lys, n is an integer of 0 to 14, and Yaa is Arg, Arg-NH₂, Lys, Lys-NH₂ or Hse) on its C-terminus of the peptide.
- 10 2. A peptide according to claim 1, wherein the amino acid sequence of GLP-1 is substituted at position 8 with Ser.
- 15 3. A peptide according to claim 1, wherein the amino acid sequence of GLP-1 is substituted at position 26 with Gln and at position 34 with Asn.
- 20 4. A peptide according to claim 1, wherein n is an integer of 1 to 9.
5. A peptide according to claim 1, wherein n is an integer of 3 to 5.
- 25 6. A peptide according to claim 1, which is represented by the general formula: [Ser⁸, Gln²⁶, Asn³⁴] - GLP-1 (7-35) - (Arg)_n-Yaa (in which n is an integer of 4 to 6, and Yaa is Arg or Arg-NH₂).

7. A peptide according to any one of claims 1 to 3, which has a higher efficiency of transmucosal absorption than that of naturally occurring GLP-1.

5

8. A pharmaceutical composition containing as an active ingredient a peptide according to any one of claims 1 to 3.

9. A pharmaceutical composition according to claim 8,
10 which contains a fat emulsion regulated to be negatively charged thereon.

10. A pharmaceutical composition according to claim 8 or 9, which is used for transmucosal administration, particularly
15 for nasal administration.

11. A pharmaceutical composition according to claim 8 or 9, which is used in treatment of non-insulin dependent chronic diabetes mellitus, treatment of insulin dependent chronic
20 diabetes mellitus, treatment of obesity and/or suppression of appetite.